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west virginia department of environmental protection

G70-D GENERAL PERMIT ENGINEERING EVALUATION

PREVENTION AND CONTROL OF AIR POLLUTION IN REGARD TO THE CONSTRUCTION, MODIFICATION, RELOCATION, ADMINISTRATIVE UPDATE AND OPERATION OF NATURAL GAS PRODUCTION FACILITIES LOCATED AT THE WELL SITE

APPLICATION NO.: G70-D209

FACILITY ID: 085-00058

☒ CONSTRUCTION
☐ MODIFICATION
☐ RELOCATION

☐ CLASS I ADMINISTRATIVE UPDATE
☐ CLASS II ADMINISTRATIVE UPDATE

BACKGROUND INFORMATION

Name of Applicant (as registered with the WV Secretary of State's Office):
EQT Production Company

Federal Employer ID No. (FEIN): 25-0724685

Applicant's Mailing Address: 625 Liberty Avenue, Suite 1700

City: Pittsburgh

State: PA

ZIP Code: 15222

Facility Name: PEN-54 Wellpad

Operating Site Physical Address: Pennsboro, Ritchie County
If none available, list road, city or town and zip of facility.

City: Pennsboro

Zip Code: 26415

County: Ritchie

Latitude & Longitude Coordinates (NAD83, Decimal Degrees to 5 digits):

Latitude: 39.257421 N

Longitude: -80.927339 W

SIC Code: 1311

NAICS Code: 211111

Date Application Received:

July 20, 2016

Fee Amount: \$1,500

Date Fee Received: August 16, 2016

Applicant Ad Date: August 11, 2016

Newspaper: *The Ritchie Gazette & Cairo Standard*

Date Application Complete: August 16, 2016

Due Date of Final Action: October 1, 2016

Engineer Assigned: John Legg

Description of Permitting Action: General permit application (G70-D) for an existing natural gas production well pad.

PROCESS DESCRIPTION

The following process description was taken from Registration Application G70-D209:

This G70-D Permit Application involves the construction of a new natural gas production wellpad (Pen-54). The wellpad will consist of eleven (11) wells, each with the same basic operation. The following equipment will be installed at the facility: twelve (12), 400-barrel capacity produced fluid (water and condensate) storage tanks (S001 thru S0012); two (2) low pressure separators with associated line heaters (S024 and S025, each at 1.15 MM Btu/hr) and vapor recovery units (VRUs: S030 and S031) each powered by a natural gas-fired 400 hp engine (S030 and S031); eleven (11), 1.54 MM Btu/hr line heaters (S013 thru S023); three (3), 0.013 MM Btu/hr thermoelectric generators (TEGs: S026, S027, and S033); and two (2), 140-barrel capacity sand separator tanks (S028 and S029).

The incoming gas/liquid stream from the underground well will pass through a sand separator, where sand, water, and residual solids are displaced and transferred to the sand separator tanks (S028, S029). The gas stream will then pass through the line heaters (S013-S023) to raise/maintain temperature. The stream will then pass through the high pressure (3 phase) separators, which will separate gas (natural gas from the separator is sent to the sales line) from liquids (condensate and produced water). The produced water will be sent to the produced fluids tanks (S001-S006) and the condensate stream will then pass through the low pressure separators, where it is heated (S024 and S025) to volatilize (flash off) lighter hydrocarbons and separate condensate in the liquid stream. The flash gas from the condensate stream is recovered by the Vapor Recovery Units (VRUs: S030 and S031), each of which utilizes a natural gas-fired engine driven compressor to raise the pressure of the flash gas and route it back into the natural gas pipeline. The condensate is then transferred to the produced fluids tanks (S006-S012).

Emissions from the storage vessels are controlled by two enclosed combustors (C001 and C002). Once the tanks are filled, the contents are loaded into trucks for transport. EQT utilizes vapor balancing in the truck loading operations, which means the vapors displaced by the filling of tanker trucks (S032) are routed back into the battery of tanks and ultimately to the combustor. Facility electricity is provided by thermoelectric generators (TEGs: S026, S027, S033).

SITE INSPECTION

Site Inspection Date: 8/16/15 and 11/22/2016

Site Inspection Conducted by: Doug Hammell

Results of Site Inspection: In compliance with G70's 300 ft proximity minimum: No Residences within 300ft. Closest house approximately 2,500 ft SSW from pad center (39.25741 and -80.927339). No houses were observed within 1,000 feet of the site.

Did Applicant meet Siting Requirements? Yes

If applicable, was siting criteria waiver submitted? NA

Directions to Facility: Directions wrong in application. Changed to: From US-50/Toll Gate to CR-10/Cabin Run, South on CR-10 for 1.6 miles to access road. West on access road for 2.0 miles to pad entrance.

ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

The following table indicates which methodology was used in the emissions determination:

Emission Unit ID#	Process Equipment	Calculation Methodology (e.g. ProMax, GlyCalc, mfg. data, AP-42, etc.)
S001-S012	Twelve (12), 400 Barrel - Produced Fluid Storage Tanks	ProMax
S013-S022	Eleven (11), 1.54 MM Btu/hr - Line Heaters	AP-42 Section 1.4 (NG Combustion)
S024; S025	Two (2), 1.15 MM Btu/hr - Line Heaters	AP-42 Section 1.4 (NG Combustion)
S026; S027; S033	Three (3), 0.013 MM Btu/hr - Thermoelectric Generators	AP-42 Section 1.4 (NG Combustion)
S028; S029	Two (2), 140 Barrel - Sand Separator Storage Tanks	E&P Tank Software 2.0
S032	One (1), 16.65 MM gal/yr - Liquid Loading	AP-42 Section 5.2 (via ProMax)
S030; S031	Two (2), 400 HP - Vapor Recovery Unit (VRU) Engines	AP-42 Table 3.2-3; 40CFR60, Subparts IIII & JJJJ, Tables 1
S032	Produced Fluid Tank Truck Loading (Uncontrolled)	ProMax.
C001	One (1), 19.22 MM Btu/hr - Tank Combustor	ProMax, AP-42
C002	One (1), 11.66 MM Btu/hr - Tank Combustor	ProMax, AP-42
---	Fugitive Component/Equipment Leaks	EPA 453/R-95-017, November 1995
---	Haul Roads (Fugitive Emissions)	AP-42 (Factors for Unpaved Haul Roads)

The total PTE for the facility (including fugitive VOC, HAPs and PM-10) is given in the table below.

Note: The fugitive emissions of a stationary source shall not be considered in determining whether it is a major stationary source for the purposes of 45CSR30-2.26.b or for eligibility of this General Permit.

Pollutant	G70-D Annual Emission Limits (tons/year)	Facility Wide PTE (tons/year)
Nitrogen Oxides	50	29.07
Carbon Monoxide	80	33.38
Volatile Organic Compounds	80	62.04
Particulate Matter-10/2.5	20	3.47
Sulfur Dioxide	20	0.14
Total HAPs	20	3.83

Maximum point source emissions after controls were calculated by the applicant, checked for accuracy by the writer and summarized in the table below:

APPLICANT: EQT Production, LLC														FACILITY NAME: Pen – 54 Pad						G70-D209					
Emission Point ID#	Emission Source Description	NO _x		CO		VOC		HAP		SO ₂		PM ₁₀		PM _{2.5}		GHG (CO ₂ e)									
		lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy								
C001 – C002 Tank Combustors (C001: 19.22 MM Btu/hr) (C002: 11.66 MM Btu/hr)	Six (6) Produced Fluids (Water) Storage Tanks (400 Barrel) (S001 thru S006)	---	---	---	---	0.36	1.58	0.01	0.04	---	---	---	---	---	---	3	14								
	Six (6) Produced Fluids (Condensate) Storage Tanks (400 Barrel) (S007 thru S012)	---	---	---	---	2.33	0.61	0.06	0.01	---	---	---	---	---	---	---	---								
	Captured Liquid Loading (S032) (Produced Fluid Truck Loading)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---								
	C001 - NG Combustion (19.22MMBtu/hr)	1.89	8.28	1.59	6.95	---	---	---	---	0.01	0.05	0.14	0.63	0.14	0.63	2,258	9,889								
	C002 - NG Combustion (11.66 MM Btu/hr)	1.15	5.03	0.96	4.22	---	---	---	---	0.01	0.03	0.09	0.38	0.09	0.38	1,373	6,012								
E013 thru E023	Total	3.04	13.31	2.55	11.17	2.69	2.19	0.07	0.05	0.02	0.08	0.23	1.01	0.23	1.01	3,630	15,902								
	Eleven (11) NG-fired Line Heaters (1.54 MM Btu/hr)	1.65	7.03	1.32	5.94	0.11	0.44	0.03	0.11	0.01	0.04	0.11	0.55	0.11	0.55	1,982	8,681								
E024 and E025	Two (2) NG-fired Line Heaters (1.15 MM Btu/hr)	0.22	0.96	0.18	0.80	0.02	0.06	0.00	0.02	---	---	0.02	0.08	0.02	0.08	270	1,184								
E026, E027 and E033	Three (3) NG-fired Thermoelectric Generators (TEG) (0.013 MM Btu/hr)	0.01	0.02	0.01	0.01	---	---	---	---	---	---	---	---	---	---	5	20								
E028 and E029	Two (2) Sand Separator Tanks (140 Barrel)	---	---	---	---	0.66	2.92	0.00	0.02	---	---	---	---	---	---	10	43								
E030 and E031	Two (2) Vapor Recovery Units (VRC) NG-fired Engines (400 Hp) (S030 and S031)	1.76	7.72	3.52	15.46	1.36	5.94	0.20	0.86	---	---	0.12	0.52	0.12	0.52	3,432	15,034								
E032	Uncaptured Liquid Loading *** Counted in Total ***	---	---	---	---	49.91	12.98	1.24	0.34	---	---	---	---	---	---	---	560								
---	Fugitive VOC Component Leaks *** Not Counted in Total ***	---	---	---	---	---	37.57	---	2.42	---	---	---	---	---	---	---	---								
---	Haul Roads *** Not Counted in Total ***	---	---	---	---	---	---	---	---	---	---	---	1.33	---	0.13	---	---								
TOTAL	Excluding Fugitive VOC Component Leaks & Haul Roads	6.67	29.04	7.57	33.38	54.75	24.53	1.54	1.40	0.05	0.20	0.48	2.16	0.48	2.16	9,333	41,424								

REGULATORY APPLICABILITY

The following rules apply to this modification:

45CSR2 (Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers)

The purpose of 45CSR2 (Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers) is to establish emission limitations for smoke and particulate matter which are discharged from fuel burning units.

45CSR2 states that any fuel burning unit that has a heat input under ten (10) MMBTU/hr is exempt from Sections 4 (weight emission standard), 5 (control of fugitive particulate matter), 6 (registration), 8 (testing, monitoring, recordkeeping, reporting) and 9 (startups, shutdowns, malfunctions). However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date. If the individual heat input of all of the proposed fuel burning units are below 10 MMBTU/hr, these units are exempt from the aforementioned sections of 45CSR2. However, the registrant would be subject to the opacity requirements in 45CSR2, which is 10% opacity based on a six minute block average. Fuel burning units greater than 10 MMBTU/hr are ineligible for registration under General Permit G70-D.

Emission Unit ID#	Emission Unit Description	Maximum Design Heat Input (MDHI) (MMBTU/hr)
E026, E027 and E033	Three (3) NG-fired Thermoelectric Generator (TEG) Engines.	0.013 (0.39 for 3 TEGs)
E013 thru E023	Eleven (11) NG-fired Line Heaters	1.54 (16.94 for 11 Line Heaters)
E024 and E025	Two (2) NG-fired Line Heaters	1.15 (2.30 for 2 Line Heaters)
Total:		21.33 MMBtu/hr

EQT states in the application (pg 11): The TEGs and line heaters are fuel burning units and therefore must comply with Rule 2. Per 45 CSR 2-3, opacity of emissions from units shall not exceed 10%.

45CSR6 (To Prevent and Control Air Pollution from the Combustion of Refuse)

45CSR6 prohibits open burning, establishes emission limitations for particulate matter, and establishes opacity requirements. Sources subject to 45CSR6 include completion combustion devices, enclosed combustion devices, and flares.

The facility-wide requirements of the general permit include the open burning limitations §§45-6-3.1 and 3.2.

All completion combustion devices, enclosed combustion devices, and flares are subject to the particulate matter weight emission standard set forth in §45-6-4.1; the opacity requirements in §§45-6-4-3 and 4-4; the visible emission standard in §45-6-4.5; the odor standard in §45-6-4.6; and, the testing standard in §§45-6-7.1 and 7.2.

Enclosed combustion control devices and flares that are used to comply with emission standards of NSPS, Subpart OOOO are subject to design, operational, performance, recordkeeping and reporting requirements of the NSPS regulation that meet or exceed the requirements of 45CSR6.

EQT states in the application (pg 12): The enclosed combustors (C001 and C002) are incinerators and must comply with Rule 6. Per 45 CSR 6-4.3, opacity of emissions from combustors shall not exceed 20%, except as provided in 6-4.4. PM emissions from combustors will not exceed the levels calculated in accordance with section 6-4.1.

Emission Unit ID#	Maximum Design Heat Input (MDHI) (MMBTU/hr)	Subject to Weight Emission Standard?	Control Efficiency Claimed by Registrant	Provide Justification how 45CSR6 is met.
C001 NG-fired Tank Combustor	19.22	Yes	98%	The combustors have minimal particulate matter emissions. Therefore, the combustor should demonstrate compliance with the particulate matter weight emission standard in §45-6-4.1. The facility will demonstrate compliance by maintaining records of the amount of natural gas consumed by the combustor and the hours of operation. The facility will also monitor the flame of the combustor and record any malfunctions that may cause no flame to be present during operation.
C002 NG-fired Tank Combustor	11.66	Yes	98%	

45CSR10 (To Prevent and Control Air Pollution from the Emission of Sulfur Oxides)

45CSR10 establishes emission limitations for SO₂ emissions which are discharged from stacks of fuel burning units. A “fuel burning unit” means and includes any furnace, boiler apparatus, device, mechanism, stack or structure used in the process of burning fuel or other combustible material for the primary purpose of producing heat or power by indirect heat transfer. Sources that meet the definition of “Fuel Burning Units” per 45CSR10-2.8 include GPUs, in-line heaters, heater treaters, and glycol dehydration unit reboilers.

Fuel burning units less than 10 MMBtu/hr are exempt. The sulfur dioxide emission standard set forth in 45CSR10 is generally less stringent than the potential emissions from a fuel burning unit for natural gas. The SO₂ emissions from a fuel burning unit will be listed in the G70-D permit registration at the discretion of the permit engineer on a case-by-case basis. Issues such as non-attainment designation, fuel use, and amount of sulfur dioxide emissions will be factors used in this determination. Fuel burning units greater than 10 MMBTU/hr are ineligible for registration under General Permit G70-D

Fuel burning units burning natural gas are exempt from Section 8 (Monitoring, Recording and Reporting) as well as interpretive rule 10A. The G70-D eligibility requirements exclude from eligibility any fuel burning unit that does not use natural gas as the fuel; therefore, there are no permit conditions for 45CSR10.

Emission Unit ID#	Emission Unit Description	Maximum Design Heat Input (MDHI) (MMBTU/hr)
C001	NG-fired Tank Combustor	19.22 MM Btu/hr
C002	NG-fired Tank Combustor	11.66 MM Btu/hr
E026, E027 and E033	Three (3) NG-fired Thermoelectric Generator (TEG) Engines.	0.013 (0.39 for 3 TEGs)
E013 thru E023	Eleven (11) NG-fired Line Heaters	1.54 (16.94 for 11 Line Heaters)
E024 and E025	Two (2) NG-fired Line Heaters	1.15 (2.30 for 2 Line Heaters)
Total:		52.1 MMBtu/hr

45CSR13 (Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation)

45CSR13 applies to this source due to the fact that the applicant is defined as a “stationary source” under 45CSR13 Section 2.24.b. *Stationary source* means, for the purpose of this rule, any building, structure, facility, installation, or emission unit or combination thereof, excluding any emission unit which meets or falls below the criteria delineated in Table 45-13B which: (a) is subject to any substantive requirement of an emission control rule promulgated by the Secretary; (b) discharges or has the potential to discharge more than six (6) pounds per hour and ten (10) tons per year, or has the potential to discharge more than 144 pounds per calendar day, of any regulated air pollutant; (c) discharges or has the potential to discharge more than two (2) pounds per hour or five (5) tons per year of hazardous air pollutants considered on an aggregated basis; (d) discharges or has the potential to discharge any air pollutant(s) listed in Table 45-13A in the amounts shown in Table 45-13A or greater; or, (e) an owner or operator voluntarily chooses to be subject to a construction or modification permit pursuant to this rule, even though not otherwise required to do so. 45CSR13 has an original effective date of June 1, 1974.

The applicant meets the definition of a stationary source because (check all that apply):

- ☒ Subject to a substantive requirement of an emission control rule promulgated by the Secretary.
- ☒ Discharges or has the potential to discharge more than six (6) pounds per hour and ten (10) tons per year, or has the potential to discharge more than 144 pounds per calendar day, of any regulated air pollutant.
- ☐ Discharges or has the potential to discharge more than two (2) pounds per hour or five (5) tons per year of hazardous air pollutants considered on an aggregated basis.
- ☐ Discharges or has the potential to discharge any air pollutant(s) listed in Table 45-13A in the amounts shown in Table 45-13A or greater.
- ☐ Voluntarily chooses to be subject to a construction or modification permit pursuant to this rule, even though not otherwise required to do so.

General Permit G70-D Registration satisfies the construction, modification, relocation and operating permit requirements of 45CSR13. General Permit G70-D sets forth reasonable conditions that enable eligible registrants to establish enforceable permit limits.

Section 5 of 45CSR13 provides the permit application and reporting requirements for construction of and modifications to stationary sources. No person shall cause, suffer, allow or permit the construction, modification, relocation and operation of any stationary source to be commenced without notifying the Secretary of such intent and obtaining a permit to construct, modify, relocate and operate the stationary source as required in the rule or any other applicable rule promulgated by the Secretary.

If applicable, the applicant meets the following (check all that apply):

- ☒ Construction
- ☐ Relocation
- ☐ Modification
- ☐ Class I Administrative Update (45CSR13 Section 4.2.a)
- ☐ Class II Administrative Update (45CSR13 Section 4.2.b)

45CSR16 (Standards of Performance for New Stationary Sources Pursuant to 40 CFR Part 60)

45CSR16 applies to all registrants that are subject to any of the NSPS requirements described in more detail in the Federal Regulations section. Applicable requirements of NSPS, Subparts IIII, JJJJ and OOOO are included in General Permit G70-D.

The applicant is subject to:

- ☐ 40CFR60 Subpart IIII
- ☒ 40CFR60 Subpart JJJJ
- ☐ 40CFR60 Subpart OOOO
- ☒ 40CFR60 Subpart OOOOa

45CSR22 (Air Quality Management Fee Program)

45CSR22 is the program to collect fees for certificates to operate and for permits to construct or modify sources of air pollution. 45CSR22 applies to all registrants. The general permit fee of \$500 is defined in 45CSR13. In addition to the application fee, all applicants subject to NSPS requirements or NESHAP requirements shall pay additional fees of \$1,000 and \$2,500, respectively.

Registrants are also required to obtain and have in effect a valid certificate to operate in accordance with 45CSR22 §4.1. The fee group for General Permit G70-D is 9M (all other sources) with an annual operating fee of \$200.

40CFR60 Subpart JJJJ (Standards of Performance for Stationary Spark Ignition Internal Combustion Engines)

Subpart JJJJ sets forth nitrogen oxides (NO_x), carbon monoxide (CO), and volatile organic compound (VOC) emission limits, fuel requirements, installation requirements, and monitoring requirements based on the year of installation of the subject internal combustion engine. The provisions for stationary spark ignition (SI) internal combustion engines for owners or operators of this Subpart have been included in General Permit G70-D, Section 13.

EQT states in the application (pg 12): Subpart JJJJ affects owners and operators of stationary spark ignition internal combustion engines (SI ICE) that commence construction, reconstruction or modification after June 12, 2006. Applicability dates are based on the date the engine was ordered by the operator. The proposed engines (two VRU engines) at the well pad are a 4-stroke rich burn, spark ignition engine manufactured after January 1, 2011, and are subject to this subpart.

EQT will operate the engines according to the manufacturer's recommended practices and demonstrate compliance with the requirements specified in 40 CFR§60.4244 (testing methods) and 40 CFR§60.4243 (maintenance plan/records and performance testing frequency) for noncertified affected SI ICE at the facility, which includes an initial performance test within 1 year of engine startup to demonstrate compliance with the regulation.

Emission Unit ID#	Engine Description (Make, Model)	Engine Size (HP)	Date of Manufacture	Provide Justification how 40CFR60 Subpart JJJJ is met.
E030	Caterpillar/G3408	400	>January 2011	<input checked="" type="checkbox"/> Met Emission Standard <input type="checkbox"/> Certified Engine
E031	Caterpillar/G3408	400	>January 2011	<input checked="" type="checkbox"/> Met Emission Standard <input type="checkbox"/> Certified Engine

40CFR60, Subpart OOOO (Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced after August 23, 11, and on or before September 18, 2015)

EPA published its New Source Performance Standards (NSPS) and air toxics rules for the oil and gas sector on August 16, 2012. EPA published final amendments to the Subpart on September 23, 2013 and June 3, 2016.

40CFR60 Subpart OOOO establishes emission standards and compliance schedules for the control of volatile organic compounds (VOC) and sulfur dioxide (SO₂) emissions from affected facilities that commence construction, modification or reconstruction after August 23, 2011. The affected sources

which commence construction, modification or reconstruction after August 23, 2011 and on or before September 18, 2015. The affected sources which commence construction, modification or reconstruction after August 23, 2011 and on or before September 18, 2015 are subject to the applicable provisions of this Subpart as described in the tables below:

EQT states in the application (pg 9): Subpart OOOO applies to affected facilities that commenced construction, reconstruction, or modification after August 23, 2011 and on or before September 18, 2015.

The NSPS was first published in the Federal Register on August 16, 2012, and subsequently amended. On June 3, 2016, EPA recently finalized 40 CFR 60 Subpart OOOOa.

This proposed project does not include any construction, reconstruction or modification prior to September 18, 2015. Therefore, this subpart is not applicable to the proposed project.

Applicability of Subpart OOOOa is discussed in the section following this one.

Gas well affected facilities are included in General Permit G70-D in Section 5.0.

Are there any applicable gas well affected facilities? ☐ Yes ☒ No

Each centrifugal compressor affected facility, which is a single centrifugal compressor using wet seals that is located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. A centrifugal compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this Subpart.

Each reciprocating compressor affected facility, which is a single reciprocating compressor located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. A reciprocating compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this subpart.

Pneumatic controllers affected facilities are included in General Permit G70-D, Section 10.0.

Are there any applicable pneumatic controller affected facilities? ☐ Yes ☒ No

For the natural gas production segment (between the wellhead and the point of custody transfer to the natural gas transmission and storage segment and not including natural gas processing plants), each pneumatic controller affected facility, which is a single continuous bleed natural gas-driven pneumatic controller operating at a natural gas bleed rate greater than 6 scfh.

Requirements for storage vessel affected facilities are included in General Permit G70-D, Section 7.0.
Determination of storage vessel affected facility status is included in Section 6.0 of General Permit G70-D.

Are there any applicable storage vessel affected facilities? ☐ Yes ☒ No

Each storage vessel affected facility, which is a single storage vessel located in the oil and natural gas production segment, natural gas processing segment or natural gas transmission and storage segment, and has the potential for VOC emissions equal to or greater than 6 tpy as determined according to this section by October 15, 2013 for Group 1 storage vessels and by April 15, 2014, or 30 days after startup (whichever is later) for Group 2 storage vessels. A storage vessel affected facility that subsequently has its potential for VOC emissions decrease to less than 6 tpy shall remain an affected facility under this subpart.

40CFR60, Subpart OOOOa (Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced after September 18, 2015)

EPA published its New Source Performance Standards (NSPS) and air toxics rules for the oil and gas sector on August 16, 2012. EPA published amendments to the Subpart on September 23, 2013 and June 3, 2016.

40CFR60 Subpart OOOOa establishes emission standards and compliance schedules for the control of the pollutant greenhouse gases (GHG). The greenhouse gas standard in this subpart is in the form of a limitation on emissions of methane from affected facilities in the crude oil and natural gas source category that commence construction, modification or reconstruction after September 18, 2015. This subpart also establishes emission standards and compliance schedules for the control of volatile organic compounds (VOC) and sulfur dioxide (SO₂) emissions from affected facilities that commence construction, modification or reconstruction after September 18, 2015. The effective date of this rule is August 2, 2016.

For each well site, the registrant must reduce GHG (in the form of a limitation on emissions of methane) and VOC emissions by complying with fugitive emissions monitoring as required in §60.5397a and the alternative means of emission limitations in §60.5398a.

EQT states in the application (pg 10): 40 CFR 60.5385 requires owners and operators of affected reciprocating compressors to change the rod packing prior to operating 26,000 hours or prior to 36 months since start up or the last packing replacement. However, according to §60.5365a, compressors located at well sites are not affected facilities under Subpart OOOOa.

There are eleven (11) produced fluid storage vessels and two (2) sand separator storage vessels at the wellpad. The storage vessels at the facility will each have potential VOC emissions less than 6 tpy based on the permit application materials and enforceable limits to be included in the G70-C permit. As such, per §60.5365a(e), the tanks will not be storage vessel affected facilities under the rule.

The proposed well pad is an affected facility under §60.5365a(i). Therefore, EQT will be required to monitor all fugitive emission components (ex. Connectors, flanges, etc.) with an optical gas imaging (OGI) device, and repair all sources of fugitive emissions in accordance with the rule. EQT must also develop a corporate-wide monitoring plan and a site specific monitoring plan (or one plan that incorporates all required elements), and conduct surveys on a semi-annual basis. EQT is also subject to the applicable recordkeeping and reporting requirements of the rule.

The new pneumatic controllers will potentially be subject to NSPS OOOOa. Per §60.5365a(d)(1), a pneumatic controller affected facility is a single continuous bleed natural gas driven pneumatic controller operating at a natural gas bleed rate greater than 6 scfh. No pneumatic controllers installed will meet the definition of a pneumatic controller affected facility. Therefore, these units are not subject to the requirements of Subpart OOOOa.

Gas well affected facilities are included in General Permit G70-D in Section 5.0.

Are there any applicable gas well affected facilities? ☒ Yes ☐ No

If Yes, list.

API Number	Date of Flowback	Date of Well Completion	Green Completion and/or Combustion Device	Subject to OOOOa?
047-085-10222	January 2017	January 2017	Green	Yes
047-085-10227	January 2017	January 2017	Green	Yes
047-085-10226	January 2017	January 2017	Green	Yes
047-085-10225	January 2017	January 2017	Green	Yes
047-085-10228	January 2017	January 2017	Green	Yes
047-085-10229	January 2017	January 2017	Green	Yes
047-085-10230	January 2017	January 2017	Green	Yes
047-085-10231	January 2017	January 2017	Green	Yes
047-085-10232	January 2017	January 2017	Green	Yes
TBD	TBD	TBD	TBD	Yes
TBD	TBD	TBD	TBD	Yes

Each centrifugal compressor affected facility, which is a single centrifugal compressor using wet seals. A centrifugal compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this Subpart.

Each reciprocating compressor affected facility, which is a single reciprocating compressor. A reciprocating compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this subpart.

Pneumatic controllers affected facilities are included in General Permit G70-D, Section 10.0.

Are there any applicable pneumatic controller affected facilities? ☐ Yes ☒ No

Each pneumatic controller affected facility not located at a natural gas processing plant, which is a single continuous bleed natural gas-driven pneumatic controller operating at a natural gas bleed rate greater than 6 scfh.

Requirements for storage vessel affected facilities are included in General Permit G70-D, Section 7.0.

Are there any applicable storage vessel affected facilities? ☐ Yes ☒ No

If No, list any emission reduction devices and control efficiencies used to avoid 40CFR60 Subpart OOOO.

Emission Unit ID#	Maximum Design Heat Input (MDHI) (MM BTU/hr)	Control Efficiency Claimed by Registrant
C001 - NG-fired Tank Combustor	19.22	98%
C002 - NG-fired Tank Combustor	11.66	98%

Each storage vessel affected facility, which is a single storage vessel with the potential for VOC emissions equal to or greater than 6 tpy as determined according to this section.

Fugitive Emissions GHG and VOC Standards affected facilities are included in General Permit G70-D in Section 12.0.

Did the registrant commence construction, modification, or reconstruction of the well site after September 18, 2015 and is subject to §60.5397a? ☒ Yes ☐ No

For the purposes of §60.5397a, a "modification" to a well site occurs when a new well is drilled at an existing well site, a well at an existing well site is hydraulically fractured, or a well at an existing well site is hydraulically refractured.

A well site that only contains one or more wellheads is not an affected facility under this subpart. The affected facility status of a separate tank battery surface site has no effect on the affected facility status of a well site that only contains one or more wellheads.

Requirements for pneumatic pump affected facilities are included in General Permit G70-D, Section 11.0.

Are there any applicable pneumatic pump affected facilities at the well site? ☐ Yes ☒ No

Each pneumatic pump affected facility at the well site, which is a single natural gas-driven diaphragm pump. A single natural gas-driven diaphragm pump that is in operation less than 90 days per calendar year is not an affected facility under this subpart as well as the required records are kept.

40CFR63 Subpart HH (National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities)

This Subpart applies to owners and operators of each triethylene glycol (TEG) dehydration unit that are located at oil and natural gas production facilities. Only area source requirements are included in General Permit G70-D, as defined in §63.761.

For area source applicability, the affected source includes each triethylene glycol (TEG) dehydration unit located at a facility that meets the criteria specified in §63.760(a).

Glycol dehydration unit(s) are included in General Permit G70-D, Section 15.0.

Are there any TEG dehydration unit(s) at this facility? ☐ Yes ☒ No

The well pad does not include a triethylene glycol dehydration unit, therefore the requirements of this subpart do not apply.

40CFR63 Subpart ZZZZ (National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines)

Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. This Subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations. This section reflects EPA's final amendments to 40 CFR part 63, Subpart ZZZZ that were issued on January 15, 2013 and published in the Federal Register on January 30, 2013.

WVDEP DAQ has delegation of the area source air toxics provisions of this Subpart requiring Generally Achievable Control Technology (GACT). The provisions of this Subpart have been included in this general permit under Section 13.0.

EQT states in the application (pg 9): 40 CFR §63.6590(c) states that a new or reconstructed stationary RICE located at an area HAP source must meet the requirements of NESHAP Subpart ZZZZ by meeting the requirements of NSPS Subpart JJJJ. No further requirements apply for such engines under NESHAP Subpart ZZZZ.

The PEN-54 well pad is a minor (area) source of hazardous air pollutants and the VRU engines are considered new stationary RICE. Therefore, the requirements contained in §63.6590 (c) are applicable. EQT will be in compliance with applicable requirements of 40 CFR 63 Subpart ZZZZ by meeting the applicable requirements of 40 CFR 60 Subpart JJJJ.

Emission Unit ID#	Engine Description (Make, Model)	Engine Size (HP)	Date of Manufacture	New or Existing under 40CFR63 Subpart ZZZZ?	Provide Justification how 40CFR63 Subpart ZZZZ is met.
E030	Caterpillar/G3408	400	>January 2011	NEW	By meeting applicable requirement of 40 CFR 60 Subpart JJJJ
E031	Caterpillar/G3408	400	>January 2011	NEW	By meeting applicable requirement of 40 CFR 60 Subpart JJJJ

Are there any engines that fall in the window of being new under 40CFR60 Subpart ZZZZ but manufactured before the applicability date in 40CFR60 Subpart JJJJ? ☐ Yes ☒ No

SOURCE AGGREGATION DETERMINATION

"Building, structure, facility, or installation" is defined as all the pollutant emitting activities which belong to the same industrial grouping, are located on one or more contiguous and adjacent properties, and are under the control of the same person.

Are there surrounding wells or compressor stations under "common control" of the applicant?

☒ Yes ☐ No

Are the properties in question located on "contiguous or adjacent" properties?

☐ Yes ☒ No

Are there surrounding facilities that share the same two (2) digit SIC code?

☒ Yes ☐ No

Final Source Aggregation Decision.

☒ Source not aggregated with any other source.

☐ Source aggregated with another source. List Company/Facility Name:

RECOMMENDATION TO DIRECTOR

The information provided in the permit application, including all supplemental information received, indicates the applicant meets all the requirements of applicable regulations and the applicant has shown they meet the eligibility requirements of General Permit G70-D. Therefore, impact on the surrounding area should be minimized and it is recommended that the facility should be granted registration under General Permit G70-D.

Permit Engineer Signature: _____

Name and Title: John Legg, Permit Writer

Date: December 01, 2016



Permit / Application Information Sheet

Division of Environmental Protection

West Virginia Office of Air Quality

Company:	EQT Production Company		Facility:	PEN-54 Wellpad	
Region:	8	Plant ID:	085-00058	Application #:	G70-C209
Engineer:	Legg, John		Category:		
Physical Address:	?? Pennsboro WV 26415		SIC: [9511] ADMIN. OF ENVIRONMENTAL, QUALITY & HOUSING PROGRAM - AIR, WATER & SOLID WASTE MANAGEMENT NAICS: [211111] Crude Petroleum and Natural Gas Extraction		
County:	Ritchie				
Other Parties:	ENV_COOR - Bosiljevac, Alex 412-395-3699 VICE PRES - Kirk, Kenneth 412-553-5700				

Information Needed for Database and AIRS

1. Need valid physical West Virginia address with zip
2. Air Program
3. Inspection result
4. Pollutant and class

Regulated Pollutants

CO	Carbon Monoxide	33.380 TPY
SO2	Sulfur Dioxide	0.140 TPY
VOC	Volatile Organic Compounds (Reactive organic gases)	62.040 TPY
PT	Total Particulate Matter	3.470 TPY
HAPOT	Hazardous Air Pollutants Other	3.830 TPY
NOX	Nitrogen Oxides (including NO, NO2, NO3, N2O3, N2O4, and N2O5)	29.970 TPY

Summary from this Permit G70-C209

Air Programs	Applicable Regulations
SIP	02 04 06 10 13 16 60 JJJJ 60 OOOO 63 ZZZZ

Fee Program	Fee	Application Type
9M	\$1,500.00	CONSTRUCTION

Activity Dates

APPLICATION RECIEVED	07/20/2016
ASSIGNED DATE	07/25/2016
APPLICANT PUBLISHED LEGAL AD	08/11/2016
APPLICATION FEE PAID	08/16/2016
APPLICATION DEEMED COMPLETE	08/16/2016
ACTUAL STARTUP DATE OF NEW PRO	11/29/2016
PERMIT APPROVED	12/01/2016

Notes from Database

Permit Note: Was assigned the application number G70-C174. This was changed to G70-C209.

Permit Note: Application directions wrong. Corrected directions: From US-50 to CR-10/Cabin Run, South on CR-10 for 1.6 miles to access road. West on access road for 2.0 miles to pad entrance.

Permit Note: Permit Registration for the following equipment: -Twelve (12), 400 barrel storage tanks for produced fluids (condensate/water) controlled by two (2) combustors, one rated at 19.22 MM Btu/hr and one rated at 11.66 MM Btu/hr; -Two (2), 140 barrel storage tanks for sand and produced fluids from the sand separator (vapors from this tank may be controlled by combustors but are not represented as controlled in this application/registration); -Eleven (11) line heaters rated at 1.54 MM Btu/hr each (heat input); -Three (3) thermoelectric generators (TEGs), each rated at 0.013 MM Btu/hr (heat input); -Two (2) low pressure separators and associated 1.15 MM Btu/hr line heaters; -Two (2) vapor recover units (VRUs) each powered by a natural gas-fired, 400 hp engine; -Produced fluid truck loading; and -Associated piping and components.

NON-CONFIDENTIAL

Please note, this information sheet is not a substitute for file research and is limited to data entered into the AIRTRAX database.

Company ID: 085-00058
 Company: EQT Production Company
 Printed: 12/01/2016
 Engineer: Legg, John

Action	Date	Days	Open	OAQ Status
APPLICATION RECIEVED	07/20/2016	0	0	0 Open on Co Time
ASSIGNED DATE	07/25/2016	----	----	----Entry ignored
APPLICANT PUBLISHED LEGAL AD	08/11/2016	----	----	----Entry ignored
APPLICATION FEE PAID	08/16/2016	----	----	----Entry ignored
APPLICATION DEEMED COMPLETE	08/16/2016	27	27	0 Open on OAQ time
ACTUAL STARTUP DATE OF NEW PRO	11/29/2016	----	----	----Entry ignored
PERMIT APPROVED	12/01/2016	0	134	107 Closed on OAQ time
Final Values	12/01/2016	0	134	107 Closed on OAQ time



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Permit Note: Total PTE for the facility included fugitive VOC, HAPs and PM-10.

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